Subminiature GPS Vehicle Tracker

User Manual

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Chapter I. Foreword

I. Overview

Are you worried about your car being stolen? It is likely that your favorite car attracts car thieves. Although you may have insured your car, it can not make up for the frustration due to loss of your favorite car…

Are you worried that your cars are deceitfully leased out and can not be recovered? You have many cars for rent and could have stayed at home comfortably to collect rent, however, the existence of swindlers always make your feel uneasy, fearing that your car is not returned on schedule and the lessee disappears together with your car...

Are you racking your brains to improve the operational efficiency of you fleet? It is a widely well-known fact that the drivers usually disregard considerable waste of company resources in the process of transportation; however, it is difficult to supervise them closely on the way of transportation. Although a variety of regulations are formulated, you still can not completely exclude all kinds of false phenomena...

The above problems can be readily solved when the subminiature GPS vehicle tracker is used!

For private cars, this product can help you locate your car in time, so that you can contact the police to recover your car. There are many successful cases of car recovery thanks to the use of our product. For the cars for rent purpose, this product can achieve monitoring unknowingly. Just sitting at home, you can know about the location and driving speed of your car, so that timely recovery of your car can be achieved based on the monitoring information in case of deceitful lease or theft. For the logistics vehicles, this product can easily solve many management problems, make the transportation process visible, transparent and controllable, prevent the drivers' frauds and irregularities, and improve the utilization of vehicles, save transportation time, reduce fuel consumption costs, improve goods delivery accuracy and increase customer satisfaction.

Featured by compact size, exquisite design and high location precision, this product can be easily installed and secured. It is very suitable for prevention of car theft, monitoring and management of logistics vehicles.

Prior to use this product, please take a few minutes to read this user manual, so as to understand the operational details and get better service.

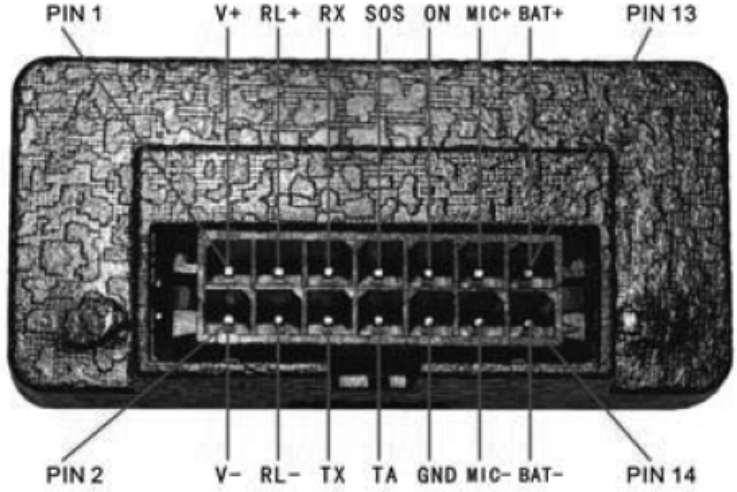
II. Precautions

1. Please read this manual carefully for correct operation.
2. You need to choose a safe place to install this product, and some dangerous places, such as automobile airbag, are not suitable for placing this product; otherwise, damage to the driver or passengers may occur.
3. This manual is just for your reference. The contents and operating steps described in this manual may be different from that of the actual product, please refer to the actual product.

Chapter II. Equipment Introduction

I. Quick Guide

1. Definition of external wiring



Pin 1: External power input (positive), voltage range: DC +6V - +24V.

Pin 2: External power input (negative), connected to GND

Pin 3: Relay control output (positive), voltage: +12V, forbidden from connecting to GND during operation

Pin 4: Relay control output (negative), connected to GND

Pin 5: Debug port RX signal

Pin 6: Debug port TX signal

Pin 7: Emergency alarm signal input SOS; high level under normal circumstances; low level input to enable SOS alarm.

Pin 8: External status signal input TA; low level under normal circumstances; high level input indicates occurrence of external events.

Pin 9: Overall power-on signal input ON, high level under normal circumstances; low level input to enable power-on.

Pin10: External input signal reference ground, connected to GND

Pin11: External microphone input (positive) MIC+

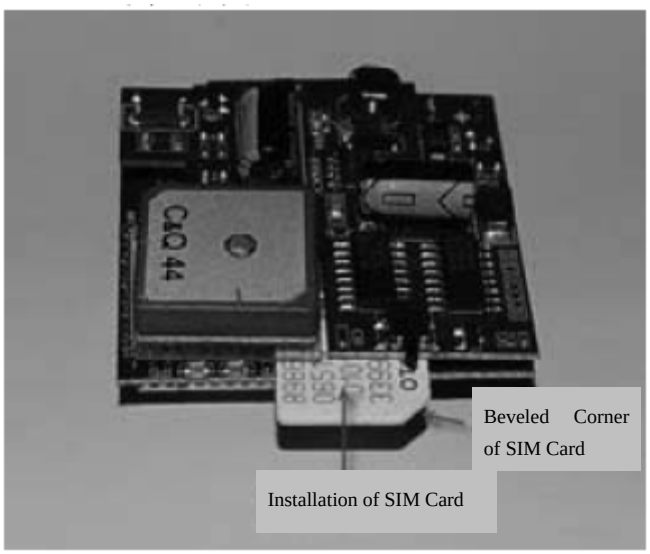
Pin12: External microphone input (negative) MIC-

Pin13: External battery input (positive) BAT+; input voltage: +3.6 - 4.2V; the equipment may be permanently damaged if the input voltage exceeds the specified range

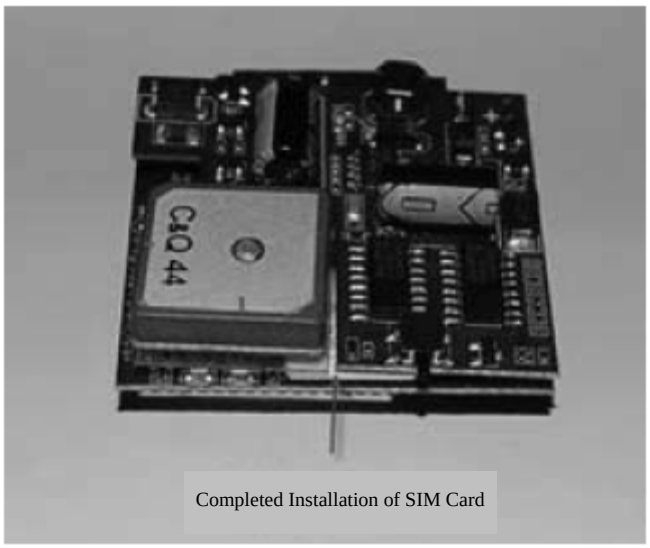
Pin14: External battery input (negative) BAT-, connected to GND

2. Installation of SIM card

Remove the shell, and install the SIM card as illustrated below:

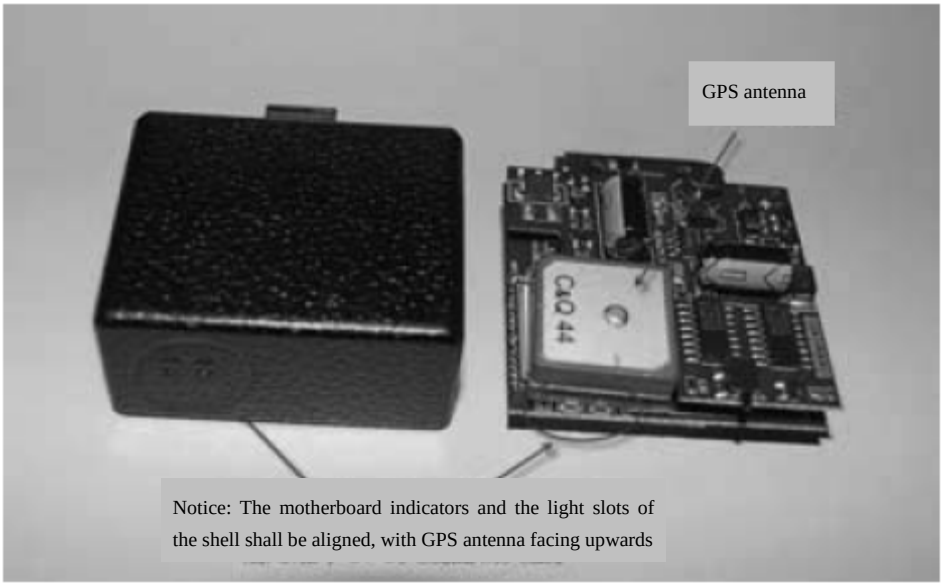


Installation of SIM Card



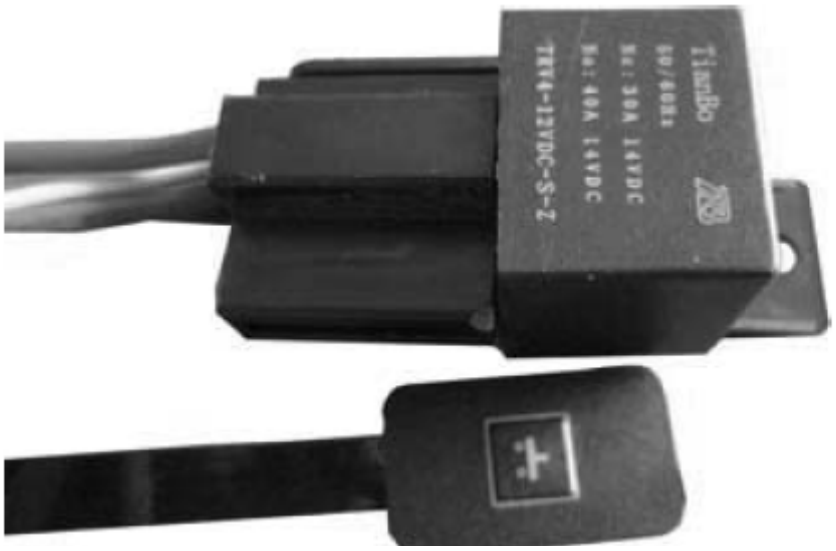
Completed Installation of SIM Card

3. After the SIM card is installed, close the shell tightly, connect the wires and turn on the equipment.


GPS antenna
Notice: The motherboard indicators and the light slots of the shell shall be aligned, with GPS antenna facing upwards

Note: Install the various functions as needed according to the above wiring diagram. If you only need the most basic positioning function, just connect to the vehicle power supply.

Optional accessories: cut-off relay, SOS alarm switch, MIC



II. Product Characteristics

- **GPS vehicle location**
- **GSM 850/900/1800/1900MHz**
- **High sensitivity, highly integrated GPS chip**

- **Low energy consumption**
- **Fast signal acquisition**
- **Support single location and continuous tracking**
- **Support the fence alarm**
- **Support location information query through SMS and the Internet**
- **Locate the user by telephone or through SMS**
- **Press the SOS button for precise positioning in an emergency**

III. Product Specifications

3.1 Technical specifications

GSM module	GSM 850/900/1800/1900MHz
GPS sensitivity	-159dBm
GPS center frequency	L1, 1575.42MHz
GPS positioning accuracy	5 - 25 m
Speed accuracy	0.1 m/s
Time accuracy	In sync with GPS
Default data	WGS-84
Hot start	1 s
Cold start	38 s
Maximum altitude	18000 m
Maximum speed	515 m/s
Acceleration of gravity	< 4g

3.2 Other specifications

Operating temperature	-20---65℃
Humidity	5%---95%
Dimensions (mm)	50*45*21
Voltage	12V - 24V
Average standby current	Less than 80MA
LED	Power supply, work status indication
External alarm switch	SOS

Chapter III. Introduction of Location Modes

Vehicle tracker is a multifunctional GPS positioning product which integrates voice call, SMS positioning and GPRS positioning services. The operating instructions of the SMS and GPRS positioning are as follows:

I. Operating instructions of SMS positioning

a. Send the message instruction “666+user password” to the terminal, and then the terminal will return a message about the latitude and longitude.

For example: When “6660000” is sent, the returned data format is as follows:

Lat: latitude (N/S); latitude value (accurate to five decimal places)

Long: longitude (E/W); longitude value (accurate to five decimal places)

Speed: KM/H (accurate to two decimal places)

Direction: direction of course (accurate to two decimal places)

Date: YYYY-MM-DD

Time: HH: MM: SS (Greenwich time)

BS: base station information

FIX: location status (A/V)

ID: IMEI

STATE: information state

Example of valid data:

Lat: N22.6189

Long: E113.6333

Speed: 0.17 KM/H

Direction: 62.58

Date: 2008-06-17

Time: 09: 39: 45

BS: 27970eb3

FIX: A

ID: 123456789000001

STATE: SMS

Display the location on the map (point-to-point mode)

Open the IE, then key in http://maps.google.com to log onto GOOGLE map website, and input the latitude and longitude on the upper left corner:

For example: 22.544N, 113.9107E

(Note: If degrees and minutes format is used, the degrees and minutes shall be separated by a space.)

“A” is the specific location displayed on the map.

II. Operating process for viewing the location through the Internet

The user can operate the GPS tracker through the Internet Positioning Service Center (jk.jy100.com) provided by us. Here, you can check the location information, query costs, historical records, control & management items, etc.

Operating process:

Log onto the website jk.jy100.com, key in your account number and password, click on Login to enter the global positioning system (For first logon, please register in our service center).

Enter the operating interface:

Double click to select the terminal, and the terminal position will be displayed on the map directly.

Click on “Get Position” to get the current position.

Click on “Playback” to view the historical track.

Chapter IV. Operation of Other Functions

I. Query through mobile phone

When you call the terminal with a mobile phone (phone number: preset number) and hang up the phone after ringing 2 - 5 times, the terminal will return a message about the latitude and longitude (To use this function, the calling number display function of the SIM card shall be subscribed).

II. Oil cut-off/power-off functions

For the installation method, please refer to the installation instructions for the relay.

a. Send the message instruction “223+user password” to the terminal, and then the terminal will return a message “RF3 OK”. The terminal will turn on the oil cut-off or power-off function.

b. Send the message instruction “233+user password” to the terminal, and then the terminal will return a message “RF3 OFF”. The terminal will deactivate the oil cut-off or power-off function.

Note: In order to avoid accidents, please take care to use the oil cut-off/power-off instruction (especially during driving).

Chapter V. Instruction Set

70X+user password, X refers to the work mode	Description: The user can switch between the work modes through this instruction. When X is 0, point-to-point mode is set; when X is 3, GRPS mode is set. Remarks: The default mode of the equipment is 3.

#710#center number#user password##	Description: The center number setting instruction is set by the operator for the normal operation of the terminal under the center mode. e.g.: #710#1066512000#0000##. After the instruction is executed, the center number is set as: 1066512000. After successful setting, the terminal returns “710 CONFIG OK” to the mobile phone; if the password is wrong, “710 PASSWORD ER” will be returned.
#711#phone number 1#phone number 2#phone number 3#user password##	Set the preset numbers through the message sent by a mobile phone. After successful setting, the mobile phone will receive the message “&711&CONFIG OK&&” returned by the terminal. e.g. 1: #711#13800000001#13800000002#13800000003#0000## e.g. 2: #711#13800000001###0000## After successful setting, the terminal returns “711 CONFIG OK” to the mobile phone; if the password is wrong, “711 PASSWORD ER” will be returned.
#720#alarm mode 0-3#user password##	Set the terminal alarm mode: Alarm mode 0: No alarm Alarm mode 1: Dialing alarm Alarm mode 2: Message alarm Alarm mode 3: Dialing alarm + Message alarm Note: When the back cover is removed or the SOS alarm switch is turned on, the terminal will give an alarm according to the preset alarm mode. e.g.: #720#3#0000##. After the instruction is executed, the terminal alarm mode is set as “dialing alarm + message alarm”; when the alarm message is sent, the first preset number will also be dialed. After successful setting, the terminal returns “720 CONFIG OK” to the mobile phone; if the password is wrong, “720 PASSWORD ER” will be returned. Note: The default alarm mode of the terminal is 0, that is, no alarm.

#730#interval#number of pieces of data returned#user password##	#730#0#1#0000##, the GPS is turned off, and the timed return function is deactivated.
#803#fixed IP address#port number#user password ##	Set the server address under the GPRS mode. Instruction for setting 988 server address: #988#www.gps02.com#80#user password## This instruction is used to set the GPRS center server address. The server address can either be a fixed IP, whose format is xxx. xxx. xxx. xxx; or a domain name, whose length is less than 64 bytes. After successful setting, "&803& CONFIG OK &&" will be returned to the phone; if the password is wrong, "&803& PASSWORD ER &&" will be returned. e.g.: #803#119.149.149.114#30000#0000## It can also be set through the domain name: e.g.: #803#jk.jy100.com#30000#0000## Note: This product has a factory-set server address, and the instruction shall be used with caution.
666+user password	Single location query; a message about the latitude and longitude will be returned.
111+user password	Description: After the instruction is executed, the terminal, according to the settings, will read the data and status information of the base station in the place where the terminal is located. The data and status information of the base station will be returned according to the following format. #base station information, information of 1st base station n#1-digit status bit #4-digit user password#requested number##. e.g.: #25738841, 25708e3d,25738709#1#0000#13900139000##

223+user password	The terminal activates the oil cut-off or power-off function
233+user password	The terminal deactivate the oil cut-off or power-off function
#770#new password#old password##	Description: After the instruction is executed, the terminal will change the user password according to the user's requirements. After successful setting, "770 CONFIG OK" will be returned to the phone; if the password is wrong, "770 PASSWORD ER" will be returned. e.g.: #770#1111#0000##. After the instruction is executed, the user password changes from 0000 to 1111.
#801#letters or numbers (0-20 digits)#user password	Change the user name under the GPRS mode Description: After the instruction is executed, the user name of the terminal under the GPRS mode will be set according to the requirements. After successful setting, "801 CONFIG OK" will be returned to the phone; if the password is wrong, "801 PASSWORD ER" will be returned. e.g.: #801#13900139000#0000## After the instruction is executed, the user name is 13900139000.
#802#APN (letters or numbers, 4-20 digits)#login user name (letters or numbers, 4-20 digits)#login password (letters or numbers, 4-20 digits)#user password##	Set the APN Description: After the instruction is executed, the terminal APN under the GPRS mode will be set according to the requirements. After successful setting, "802 CONFIG OK" will be returned to the phone; if the password is wrong, "802 PASSWORD ER" will be returned. e.g. 1: #802#CMNET###0000##. After the instruction is executed, the terminal APN is CMNET, the login user name and password are blank. e.g. 2: #802#CCDLEN#QIUXIA.21#RX#0000##. After the instruction is executed, the APN is CCDLEN, the login user name is QIUXIA.21 and the login password is RX. Note: The default APN of this product is CMNET.

#751#fence radius (meter)#sampling interval (minute)#latitude#longitude#user password##	Set the electronic fence. Description: After successful setting, “751 CONFIG OK” will be returned; if the password is wrong, “751 PASSWORD ER” will be returned. e.g.: #751#5000#5#2232.6208N#11354.6378E#0000## After the instruction is executed, the fence of 5 km radius is set for the terminal; when the terminal leaves the area, the fence alarm message will be sent to the center number.
#752#user password##	Read the electronic fence After the instruction is successfully sent, the terminal reads the work status data of the fence and returns it to the phone. If the password is wrong, “&752& PASSWORD ER &&” will be returned. e.g.: #752#0000## The following will be returned: #open:1#lat: 22.54368N#lng:113.91063E#distance:500#time:5#status:2 Wherein, open:1 refers to the activation of the fence, open:0 refers to the deactivation of the fence. lat: 22.54368 refers to the latitude (N/S). lng: 113.91063 refers to the longitude (E/W). distance: 500 refers to the radius of the fence. time:5 refers to the sampling interval. status:2 refers to that the terminal gets valid satellite data, and the fence works normally. status:1 refers to that the fence is activated, but the terminal fails to get valid satellite data. status:0 refers to that the electronic fence is not set.

#760#user password##	Cancel the electronic fence Description: After the instruction is executed, the terminal cancels the fence function. After successful setting, the terminal returns “760 CONFIG OK” to the phone. If the password is wrong, “760 PASSWORD ER” will be returned. e.g.: #760#0000##
#901##	Read the user parameters
#902##	Read the GPRS parameters
#904##	Connect to the GPRS
#905##	Disconnect to the GPRS
#921##	Activate the transmission timing After the instruction is sent, a parameter is added during GRPS transmission, and the number of minutes calculated by the internal timer will be sent to the center. After the transmission timing is activated: #15-digit EMI code#user name#status bit#password#data type#data size#base station information#latitude, longitude, speed, course#data#time#number of timed minutes## Note: The number of timed minutes is expressed with 7 digits.
#922##	Deactivate the transmission timing After the instruction is sent, the original transmission mode will be restored. Normal transmission mode: #15-digit EMI code#user name#status bit#password#data type#data size#base station information#latitude, longitude, speed, course#data#time##

#923##	Activate the timing control After the instruction is sent, the timing control will be activated. When the status bit of the terminal is high, the transmission interval keeps unchanged; when the status bit is low, the transmission interval will be adjusted to 1/5 of the normal interval.
#924##	Deactivate the timing control After the instruction is sent, the timing control will be deactivated. When the status of the terminal returns to normal, the transmission interval will not be controlled by the status bit.
#15-digit EMI code#user name#status bit#password#LPD#data size#base station information#latitude, longitude, speed, course#data#time##	Low-voltage back transmission function, and it is a low-voltage alarm message.
#15-digit EMI code#user name#status bit#password#AUT#data size#base station information#latitude, longitude, speed, course#data#time##	Timed back transmission function, and it is a data message transmitted back on a timed basis.
#15-digit EMI code#user name#status bit#password#SOS#data size#base station information#latitude, longitude, speed, course#data#time##	SOS alarm function, and it is an SOS alarm message
#15-digit EMI code#user name#status bit#password#OUT#data size#base station information#latitude, longitude, speed, course#data#time##	It is an alarm message indicating the vehicle is out of the fence.
Lat: latitude (N/S); latitude value (accurate to five decimal places) Long: longitude (E/W); longitude value (accurate to five decimal places) Speed: KM/H (accurate to two decimal places) Direction: direction of course (accurate to two decimal places)	This message is returned after the instruction “666+user password” is sent. When you call the terminal with a mobile phone (phone number: preset number) and hang up the phone after ringing 2 - 5 times, the terminal will return a message about the latitude and longitude.

Date: YYYY-MM-DD Time: HH: MM: SS (Greenwich time) BS: base station information FIX: location status (A/V) ID: IMEI STATE: information state	

Precautions:

1. This equipment is of non-waterproof design;
2. The equipment shall work under the GSM/ GPRS network environment;
3. Make sure that there is sufficient balance in the SIM card account, so as to avoid inconvenience;
4. The equipment can not work under power-off status or outside the service area, even you are a registered user;
5. This equipment supports GPS and GSM/GPRS dual positioning mode;
6. Please use this equipment in the areas permitted by law. Any consequence arising from violation of the laws shall be solely borne by the user.

Note: As this product adopts a GPS module of high sensitivity, it is normal for drift in the case of weak GPS signal.